

*Tidal Wave.*—Grand Haven Mich., 10th, the captain of steamer Flora reports encountering a tidal wave, about 5 a. m., when within 25 miles of west shore of Lake Michigan; the ridge of water was about 7 to 8 feet high; the rough sea reached the east shore of the Lake about 11 a. m.

## TEMPERATURE OF WATER.

The *temperature of water*, as observed in rivers and harbors, with average depth when observations were taken, are given in table on chart No. II. Observations were interrupted at the following places on the dates indicated: on account of loss of thermometers, at Baltimore, 1st to 5th instant, at New London, 1st to 4th, at San Francisco, 1st to 23rd, and at Savannah, from the 19th to the 29th. The report from Baltimore, received too late for insertion in table, gives the highest temperature 76°, lowest 71°, average depth, 11 feet.

## ATMOSPHERIC ELECTRICITY.

*Thunder-storms.*—1st, N. Y., Conn., Ill., Iowa, Me., Mass., Neb., N. H., N. J., Ohio, Vt., Col., N. M., Mo.; 2nd, Md., N. Y., Me., Mass., N. J., Ohio, Pa., Va., Conn.; 3rd, Ill., Mass., N. J., Pa., Iowa, Va.; 4th, Neb., N. Y., Mass., Mich., Pa., Vt., Wis., Wyo., Iowa, Va.; 5th, Md., Neb., N. Y., Dak., Ill., Ind., Me., Mass., Mich., N. H., N. J., Ohio, Pa., Vt., Col., Iowa, Mont.; 6th, Neb., Conn., Dak., Ill., Me., Md., Mass., N. H., N. J., Ohio, Pa., Va., R. I.; 7th, Kan., Neb., Fla., N. C., Dak.; 8th, Minn., Dak., Iowa, Mo., Neb., Pa., Kan., Ala., Fla., Tenn., Ga.; 9th, Ind. Ty., Kan., Minn., Neb., Ala., Dak., Ill., Ind., Iowa, Mo., N. Y., Ohio, Vt., Va., Wis., Tex., Fla., Ky.; 10th, Mass., Kan., Minn., Conn., Dak., Ill., Ind., Iowa, Md., Mich., Me., Neb., N. J., N. Y., N. C., Ohio, Pa., Vt., Va., Wis., Ky., R. I.; 11th, Neb., N. Y., Va., Conn., Ga., Ill., Ind., Iowa, Md., Mass., Mo., N. H., N. J., Ohio, Pa., Tenn., Vt., Kan., Dak., Ala., Mich., Ky., N. C., Me.; 12th, Neb., N. Y., Ala., Conn., Dak., Ill., Iowa, Kan., Me., Md., Mo., N. J., Ohio, Pa., Vt., Nev., Tex., Fla., Tenn., N. C., Va., R. I.; 13th, Dak., Ill., Iowa, Mo., Neb., N. H., N. Y., Va., Tex., Miss., Ind., Fla., Mass.; 14th, Ala., Can., Dak., Ill., Ind., Iowa, Kan., Mich., Mo., Ohio, Wis., Col., Neb., Ind. Ty., Tex., Tenn.; 15th, Neb., N. Y., R. I., Va., Conn., Ga., Ill., Ind., Mass., Mich., N. H., N. J., N. C., Ohio, Pa., Tenn., Col., Tex., Ala., Wis.; 16th, Kan., Neb., Conn., Md., Mass., N. Y., Pa., Col., Dak., Tex., Miss., Fla., Ala., N. C., Va., R. I.; 17th, Fla., Kan., Mo., N. Y., Tex., La., Ind., Ga., S. C.; 18th, Ind. Ty., Neb., Dak., Mo., Wyo., Ind., Fla., Pa., N. J.; 19th, Ind. Ty., Kan., Neb., Dak., N. C., Va., Cal., Tex., Fla.; 20th, Ind. Ty., Ga., Iowa, Wis., Kan., Tex., Dak.; 21st, Ind. Ty., Dak., Mich., N. M.; 22nd, Mo., N. Y., Pa., Kan.; 23rd, Neb., Iowa, Dak.; 24th, Kan., Dak., Ill., Ind., Iowa, Mo., Neb., Va., Minn., Tenn., N. C.; 25th, Ala., Can., Dak., Ill., Ind., Iowa, Mass., Mo., Neb., N. J., N. C., Ohio, Pa., Va., Fla., W. Va.; 26th, Kan., N. Y., Ill., Ind., Iowa, Mass., Mich., Mo., Neb., Ohio, Pa., Vt., Dak., Ala., Fla., N. C.; 27th, Kans., Conn., Dak., Ill., Ind., Iowa, Me., Md., Mass., Mich., Mo., Neb., N. Y., Ohio, Pa., Vt., Col., Ind. Ty., Wis.; 28th, Md., Ark., Conn., Ind., Mo., Mass., Mich., Me., Neb., N. J., N. Y., N. C., Ohio, Pa., Vt., Wis., Col., Tex.; 29th, Mont., Kan., Neb., N. Y., Va., Ala., Conn., Fla., Mass., N. J., Pa., Va., Col., Tex., Ind., N. C., Ga., R. I.; 30th, Fla., Mass., Neb., N. Y., Ind. Ty., Dak., Tex., N. J.

*Auroras* were observed as follows: on the 7th, in Iowa, Indiana, Canada and Maine; 8th and 9th, in northern portion of New England, Michigan and Dakota; 12th, summit of Pike's Peak and in Iowa; 13th, in New England, as far south as Connecticut; 15th, in Iowa; 16th, in Missouri, at Boonville and St. Louis, latter being most southerly during month; on the 17th a marked and general display, embracing New England, part of the Middle States, Lake region, Ohio and Upper Mississippi valleys; the most southerly reports are from Urbana, Ohio, and Chambersburg, Pa. This display, though general, was faint, white and straw being the prevailing colors. Its form was generally a dark segment, surmounted by a luminous arch, from which pale beams occasionally shot upward. It appeared earliest in the Northwest, at about 9 p. m., and was not seen in New York and New England until about 10 p. m.; its disappearance occurred at about midnight, being nearly simultaneous for all stations; 18th, in southern Michigan, New England, Ohio, at Fort Whipple, Va., which latter was the most southerly station reporting; 21st, in New Jersey; 23rd, in Maine; and on the 24th in Massachusetts.

*Telegraphic Communication Interfered with by Atmospheric Electricity.*—Pike's Peak, Col., 5th, interrupting telegraphic communication, 16th, 29th. Santa Fe, N. M., 1st, 21st. Bismarck and Deadwood, Dak., interfering with telegraph line. Mason, Tex., 9th, 12th. Eagle Pass and Laredo, Tex., 12th, prevented working of line. Graham, Tex., 9th, 19th, interrupting telegraphic communication. Pembina, Dak., 9th, 23rd, 30th, interrupting communication. Cape May, 12th, intense on wires. Springfield, Mass., 18th. Winnemucca, Nev., 16th.

## OPTICAL PHENOMENA.

*Solar Halos.*—2nd, Ga.; 3rd, Iowa, Oregon, Minn., N. C., Tex.; 4th, Nev., Utah, Dak., Mo., Iowa, Minn., Ill., Neb.; 5th, Utah, Minn., Ohio, Ill.; 6th, Minn., Iowa, Me., Neb., N. Y.; 7th, Minn., Neb.; 8th, Iowa, Minn., N. Y., Conn., N. J.; 9th, Conn., Mass., Ill., Me., N. Y.; 10th, Utah, Iowa, Minn., Mass., N. Y.; 11th, Ohio, N. Y.; 12th, Tex., Iowa, Minn., Ohio, N. C.; 13th, Me., Ill., Ind., Ohio, Tex.; 14th, Nev., Dak., Minn., N. Y., Me., Conn., Pa.; 15th, Pa.; 16th, Cal.; 17th, Iowa; 18th, Utah, Iowa, N. C., Neb.; Oregon, 19th, Iowa; 20th, Iowa, Wis., Ill.; 21st, Dak., Ohio; 22nd, Iowa, Ga.; 23rd, Iowa, Ohio, Ky., Tenn., Ga., Fla., Cal.; 24th, Iowa, Fla., Kan.; 26th, Iowa, Mich.; 27th, N. Y., Mo.; 28th, Tex.; 30th, Kan., Mo.

*Lunar Halos*.—1st, Ohio, Va.; 2nd, Tex., N. C.; 3rd, Neb., Utah, Tex., Miss., Tenn., N. C.; 4th, Oregon, Utah; 7th, Neb.; 10th, Tenn.; 12th, Ohio, Iowa; 13th, Ind.; 14th, Ill.; 23rd, Tex.; 24th, Fla., Va.; 25th, Mo.; 26th, Iowa, Ind., Fla.; 27th, Tex., Iowa, N. Y., Fla., Ohio; 28th, Ind. Ty., Neb., Utah, Tex., La., Va., Idaho; 29th, Ind. Ty., Utah, Wis., N. Y., Kan., Mo.; 30th, Ala., Wis., Fla., Kan.

*Mirage*.—Breckenridge, Minn., 21st; Duluth, Minn., 17th; Oswego, N. Y., 24th; Cape May, 6th.

## MISCELLANEOUS PHENOMENA.

**BOTANICAL**.—Pembina, Dak., 5th, lettuce and radish in market; 18th, wild strawberries ripe; 20th, asparagus and new potatoes in market. Breckenridge, Minn., 24th, wheat and oats heading. Chattanooga, Tenn., 25th, peaches ripening. Augusta, Ga., ripening, 4th, blackberries; 7th, figs; 21st, peaches and tomatoes: cotton blooming, 11th. Cadistoga, Cal., wild flowers seeding 14 days later, and grapes in bloom 3 weeks later than last year. Houston, Fla., ripe, 1st, watermelons; 10th, tomatoes. Milton, Fla., ripe, 1st, peaches; 15th, apples; 20th, green corn in market. Augusta, Ill., in bloom, 21st, elder; 22nd, chestnut; 25th, corn tasseling. Manitowoc, Wis., 30th, crops look well. Prof. Hiprich, in the Iowa Weather-Service, reports the condition of the crops as follows: Corn, about 5 per cent. below average on western slope, also, in middle, north and western southwest; 5 to 10 per cent. above, down the Upper Des Moines and Raccoon and southwest to Page and Decatur counties; from 3 to 6 per cent. above between Turkey and Cedar rivers, and equal to average in the north and Middle. Wheat from 20 to 40 per cent. below average in middle east, from 10 to 20 per cent. in middle north, and on western slope, except in Plymouth Co., where grasshoppers have almost completely destroyed the crops. Hay and pasture have improved during month. Arlington, Ind., in bloom 23rd, elder. Vail, Ia., 30th, all small grain very thin, nearly all headed out, corn doing well, prairie grass very light. Nora Springs, Ia., 25th, raspberries ripening. Independence, Ia., 30th, crops looking very well. Holton, Kan., 30th, continued rain injuring wheat. Creswell, Kan., 13th, oats heading. Independence, Kan., 15th, blackberries ripe. Brookhaven, Miss., 12th, cotton blooming; corn tasseling from 7th to 26th. Clear Creek, Neb., 24th, wheat headed. Statesville, N. C., 30th, wheat and oat crops very good, cotton and corn very promising. Fayetteville, N. C., 6th, corn tasseling.

**Harvesting**.—Ft. Gibson, Ind. Ty., 24th, oats; Uvalde, Tex., 4th, grain; Breckenridge, Wis., 11th, hay; Wytheville, Va., 21st, wheat—grain and grass both light; Highland, Ill., 11th, first wheat; Vevay, Ind., 17th, wheat; crops excellent; Arlington, Ind., 21st, harvesting begun; Guttentburg, Ia., 26th, wheat; Ft. Madison, Ia., 26th, wheat; Creswell, Kan., 10th, harvesting begun; 29th, fall wheat cut; Independence, Kan., 9th, wheat; Fallston, Md., 23rd, wheat; Ashley, Mo., 16th, wheat; crops good; 30th, oats—yield light; Fayetteville, N. C., 5th, wheat harvesting general; crop very good; Ringgold, O., 30th, wheat crop very good; Jacksonburg, O., 9th, barley; 21st, wheat; North Lewisburg, O., 30th, harvest begun; Bethel, O., 20th, wheat—injured by fly; Wooster, O., 26th, wheat.

**Rot**.—Highland, Ill., slight rot in grapes appeared on 14th, but on 30th seemed to have disappeared.

**BIRDS**.—*Geese*.—Cairo, Ill., 27th, wild geese going south.

**MISCELLANEOUS**.—*Grasshoppers*.—Winnemucca, Nev., 2nd, myriads invaded town from the north; 4th, in great numbers; 5th, a few still in vicinity; 9th, a swarm passed in easterly direction; 15th, 29th, a few seen. Salt Lake City, 2nd, reported to be in large numbers on east and west "bench lands." Yankton, Dak., 8th, dense swarms, moving SW.; 26th, moving southward. Fort Fetterman, Wyo., 14th, "myriads of grasshoppers cover ground." Clear Creek and Genoa, Neb., from 24th to 29th. Iowa, 30th, "grasshoppers have done much damage in the northwest of State, and even down to Woodbury Co." *Locusts*.—Fort Stephenson, Dak., disappeared on 24th. Augusta, Ga., 19th, first appearance. Independence, Kan., disappeared on 25th. Emory Grove, Md., 20th to 23rd. Oregon, Mo., locusts continued in full force until 18th, when they began dying rapidly. Plattsmouth, Neb., appeared May 27th, and on June 11th developed to immense numbers, depositing eggs; 18th, dying of rapidly; 21st, almost disappeared. Cincinnati, Ohio, first heard, 24th. Norwalk, Ohio, 13th. Melissa, Tex., 2nd, in abundance. Coalville, Utah, 30th, flying S. and SE., very high.

**Meteors**.—Leavenworth, 12th, from N-NE. at elevation of 45° to 50°; in falling curved towards the NE. for about 20° and then exploded with a loud noise, scattering in all directions; appeared to be about 6 in. in diameter and was exceedingly bright. At Larned, Kan., a brilliant meteor was observed on the evening of the 18th, a few moments after sunset, remaining visible about eight or ten seconds; position 25 or 30 degrees above horizon, with "no apparent motion, consequently it must have been approaching the earth directly in the line of spectators;" apparent diameter, 1½ degrees; tail irregular and nearly perpendicular to horizon, length about 20 degrees, breadth about 30 degrees. 25th, on Cut Creek, 24 miles west of Alamosa, Col., shortly before sunrise, large pear-shaped meteor "fell straight down from vicinity of Jupiter; it threw out spark plainly visible in broad daylight; seemed to strike the ground not more than half a mile away; color, pale white." It is reported that the recent earthquake at Virginia City, Nev., was not felt in the lower levels of the mines in that region.

**Polar Bands**.—Cape Hatteras, 17th; Wytheville, Va., 1st, 13th, 15th, 16th, 18th, 21st.

**Prairie and Forest Fires**.—Los Angeles, Cal., 2nd. Colorado Springs, Col., 25th; mountain fires in SW. Cape Hatteras, N. C., 24th. Summit, Col., 30th, during most of month three large forest fires have